

Hexamethylenediamine Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Application (Nylon Production, Nylon Synthesis, Biocides, Curing Agents, Lubricants, Others), By End User (Textile, Fiber, Plastic, Automotive, Others), By Region and Competition

<https://marketpublishers.com/r/H22AA890950BEN.html>

Date: October 2023

Pages: 178

Price: US\$ 4,900.00 (Single User License)

ID: H22AA890950BEN

Abstracts

Global Hexamethylenediamine Market has valued at USD 8.75 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 5.02% through 2028. Hexamethylenediamine, commonly referred to as HMDA, is an organic compound with the chemical formula $\text{H}_2\text{N}(\text{CH}_2)_6\text{NH}_2$. It is known for its colorless solid form and distinct amine odor. HMDA consists of a hexamethylene hydrocarbon chain that terminates with an amine functional group. This versatile compound finds applications in various industries due to its unique properties.

One of the primary uses of hexamethylenediamine is as a chemical intermediate. It serves as a critical monomer in the production of polymers such as nylon 6-6. Furthermore, HMDA is utilized as a corrosion inhibitor and curing agent in the chemical industry. Its ability to act as a chemical intermediate makes it valuable in the manufacturing of coatings, additives in the petrochemical industry, inks, and scale and corrosion inhibitors for water treatment chemicals.

In addition to its role as a monomer for nylon 6-6, hexamethylenediamine is also combined with dicarboxylic acids to produce other nylons, including nylon 69, nylon 610, and nylon 612. It even serves as a hardener for epoxy resins. Notably, the demand for bio-based hexamethylenediamine, particularly for the production of nylon 66, has witnessed significant growth in recent years, aligning with the increasing emphasis on

sustainability.

The applications of HMDA extend to various end-use industries such as water treatment, textile, automotive, adhesives, and paints. For instance, it finds usage in the manufacturing of resins that can be employed in adhesives and paints. As nylon continues to substitute metals in numerous automotive applications, the growth of nylon as a major substitute material is expected to drive the hexamethylenediamine market. Moreover, the rising demand for bio-based nylon resins has led to an increased focus on developing bio-based production technologies for HMDA.

While there is a growing demand for hexamethylenediamine, the market faces some challenges. Research and development efforts aimed at finding better substitutes for HMDA in the production of nylon 66 pose a significant restraint for the market. Additionally, the corrosive nature of HMDA and the associated costs of manufacturing, packaging, and transportation contribute to the challenges. Stringent government regulations concerning risk management and manufacturing further add complexity. It is important to note that hexamethylenediamine is harmful, causing irritation, skin burns, and eye damage. Its disposal also requires careful consideration due to its negative impact on invertebrates.

In conclusion, hexamethylenediamine is a versatile compound with diverse applications in the chemical industry. While facing challenges and limitations, its unique properties and wide range of uses make it an indispensable component for various industrial processes.

Key Market Drivers

Growing Demand of Hexamethylenediamine from Automotive Industry

Hexamethylenediamine (HMDA) is an organic compound widely recognized for its indispensable role as a precursor to various valuable materials. With its versatile applications, HMDA serves as a critical building block in the production of nylon resins and fibers, polyurethanes, and coatings. Its significance in these industries cannot be overstated, as it imparts essential properties to the final products.

In the automotive sector, nylon has emerged as a go-to material, specifically Nylon 66, owing to its exceptional mechanical strength, impressive elasticity, outstanding abrasion resistance, and favorable chemical resistance. These remarkable attributes make it an ideal choice for a wide range of automotive components, including those found under

the hood, tire cords, and crucial safety features like airbags. As the demand for nylon-based automotive components continues to rise, the demand for HMDA, as a key ingredient in the production of Nylon 66, follows suit.

One of the primary growth drivers of the HMDA market is the continuous expansion of the global automotive sector. With a robust and growing global economy, coupled with increased consumer spending, the worldwide automobile sales have witnessed a surge. This surge has consequently fueled the demand for automotive components, thus propelling the HMDA market to new heights.

Furthermore, the increasing emphasis on vehicle safety and the stringent safety regulations have amplified the demand for airbags in automobiles. HMDA, being a vital component in the production of nylon 66, is integral to the manufacturing of airbags. As awareness about vehicle safety increases and safety regulations become more rigorous, the demand for airbags, and subsequently HMDA, is expected to experience sustained growth.

By catering to the ever-evolving needs of various industries, HMDA continues to play a pivotal role in shaping the landscape of modern materials and contributing to their enhanced performance and functionality.

Growing Demand of Hexamethylenediamine from Textile Industry

Hexamethylenediamine (HMDA) is a versatile organic compound that serves as a crucial building block for a wide range of valuable materials. With its diverse applications, HMDA plays a pivotal role in the production of nylon polymers and fibers, polyurethanes, and coatings, among other products.

In the textile industry, HMDA is in high demand, primarily due to its vital role in the production of nylon fibers. Nylon, especially Nylon 66, is produced through the polymerization of HMDA and adipic acid. This durable and versatile material possesses exceptional properties such as high strength, elasticity, abrasion resistance, and chemical resistance. As a result, nylon finds extensive use in various textile applications, including clothing, home furnishings, and industrial textiles.

Beyond the textile industry, the demand for HMDA is further propelled by the growing trend of fast fashion and the increasing need for high-performance textiles in sectors such as healthcare, defense, and sports. The exceptional properties of HMDA-derived materials make them well-suited for these demanding applications.

Furthermore, the global emphasis on sustainable and eco-friendly textiles presents new opportunities for the HMDA market. As a key ingredient in the production of bio-based nylons, HMDA contributes to the transition towards more sustainable textile practices. This focus on sustainability aligns with the evolving consumer preferences for environmentally friendly products.

In summary, HMDA's significance in various industries, particularly the textile industry, is undeniable. Its role in the production of nylon polymers and fibers, coupled with its exceptional properties, positions HMDA as a critical component in the development of high-quality and sustainable textiles.

Key Market Challenges

Volatility in Cost of Raw Materials

Hexamethylenediamine (HMDA) is an organic compound that serves as a crucial precursor to various valuable materials, such as nylon polymers and fibers, polyurethanes, and coatings. Its production involves a meticulous process that relies on the availability and pricing of several raw materials. However, the costs of these raw materials can be subject to fluctuations due to a myriad of factors, including market availability, environmental regulations, and geopolitical issues.

The volatility in the prices of these raw materials directly impacts the overall cost of producing HMDA. When the prices of these materials soar, manufacturers may find themselves compelled to raise their prices, resulting in a potential decrease in demand and consequently, a negative impact on the growth of the market.

Environmental safety and conservation concerns have played a significant role in intensifying the scrutiny and regulation of the chemical industry. Consequently, manufacturers are now faced with the challenge of complying with stricter environmental standards, which often translates to higher costs for raw materials. For instance, the production of HMDA involves the utilization of petrochemicals, which are subject to stringent environmental regulations governing their extraction and processing. Adhering to these regulations can drive up the cost of petrochemicals, ultimately affecting the overall cost of producing HMDA.

By considering these intricate nuances in the production process, it becomes evident that the cost dynamics of HMDA are influenced by a multitude of factors, each playing a

role in shaping the market landscape. Understanding and adapting to these factors are crucial for manufacturers and stakeholders alike, as they navigate through the evolving landscape of the chemical industry.

Key Market Trends

Surge in Technological Advancements

Technological advancements in the HMDA (Hexamethylenediamine) market have brought about a wide range of improvements, spanning from enhanced production processes to the development of environmentally sustainable products. This surge in innovation is primarily driven by the imperative to optimize production efficiency, reduce costs, comply with stringent environmental regulations, and meet the rising demand for sustainable alternatives.

To ensure greater efficiency and cost-effectiveness, manufacturers have leveraged technological advancements to optimize the production process of HMDA. Innovations in chemical processing technology have enabled them to increase production capacity while minimizing waste generation and energy consumption. These advancements have not only resulted in higher productivity but have also contributed to significant cost reductions.

Furthermore, the adoption of advanced supply chain management technologies, such as artificial intelligence (AI) and big data analytics, has revolutionized the HMDA industry. Manufacturers now have the ability to forecast demand with greater accuracy, manage inventory more efficiently, and streamline logistics operations. This integration of cutting-edge technologies has further reduced costs, improved profitability, and enhanced overall operational efficiency.

In response to the escalating demand for environmentally sustainable products, manufacturers are increasingly focusing on the development of bio-based nylons. These innovative nylons, produced using bio-based HMDA, exhibit the same performance characteristics as traditional nylons but with a significantly lower environmental impact. This shift towards sustainability not only enables manufacturers to meet environmental regulations but also caters to the growing demand from environmentally conscious consumers and end-use industries for sustainable alternatives.

By embracing technological advancements and prioritizing sustainability, the HMDA

market continues to evolve, offering improved products and contributing to a greener future for the industry and the planet as a whole.

Segmental Insights

Application Insights

Based on the category of application, the nylon synthesis segment emerged as the dominant player in the global market for Hexamethylenediamine in 2022. Nylon, a versatile engineered plastic, finds extensive applications in various industries. It is commonly used in automotive parts and a wide range of apparel due to its thin and flexible nature. One of the key advantages of nylon is its robustness and durability, ensuring longevity in its usage. Additionally, nylon is intrinsically resistant to water, making it ideal for moisture-wicking purposes. Instead of absorbing moisture, nylon pushes it to the surface, facilitating easy evaporation. This unique property makes nylon a popular choice for moisture-wicking sports clothing, such as compression shorts and shirts. Its ability to keep the wearer dry and comfortable during physical activities adds to its appeal and practicality.

End User Insights

The automotive segment is projected to experience rapid growth during the forecast period. The application of nylon in the automotive industry is extensive, encompassing a wide range of components. Not only is nylon used for structural and decorative parts of vehicles, but it also finds its utility in electronic components. The versatility of nylon allows it to be a cost-effective substitute for metals, leading to reduced system costs. Additionally, the use of nylon enables the incorporation of lighter components, thereby enhancing fuel efficiency and reducing emissions.

Research indicates that even a modest 10% reduction in the weight of an automobile can yield a substantial 6%-8% improvement in fuel efficiency. This highlights the significant impact that nylon, as a lightweight and durable material, can have on enhancing the overall performance and sustainability of automotive systems.

Regional Insights

North America emerged as the dominant player in the Global Hexamethylenediamine Market in 2022, holding the largest market share in terms of both value and volume. The market dominance of the region can be primarily attributed to the surging demand

for the chemical in the thriving automotive and paints & coating industry. Additionally, the rise in construction activities further contributes to the market growth. Moreover, the market is experiencing a significant boost due to advancements in functional coating and the emerging field of 3D Printing, which presents new opportunities for additive manufacturing techniques. These factors collectively drive the growth of the market, making it a promising sector with immense potential.

Key Market Players

Asahi Kasei Corporation

Ascend Performance Materials Inc

BASF SE

Evonik Industries AG

Genomatica Inc.

INVISTA Sarl

Merck KGaA

Radici Partecipazioni SpA

Shenma Industrial Co. Ltd

TORAY INDUSTRIES INC.

Report Scope:

In this report, the Global Hexamethylenediamine Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Hexamethylenediamine Market, By Application:

Nylon Production

Nylon Synthesis

Biocides

Curing Agents

Lubricants

Others

Hexamethylenediamine Market, By End User:

Textile

Fiber

Plastic

Automotive

Others

Hexamethylenediamine Market, By Region:

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

Turkey

Egypt

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Hexamethylenediamine Market.

Available Customizations:

Global Hexamethylenediamine Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

4. GLOBAL HEXAMETHYLENEDIAMINE MARKET OUTLOOK

- 4.1. Market Size & Forecast
 - 4.1.1. By Value & Volume
- 4.2. Market Share & Forecast
 - 4.2.1. By Application (Nylon Production, Nylon Synthesis, Biocides, Curing Agents, Lubricants, Others)
 - 4.2.2. By End User (Textile, Fiber, Plastic, Automotive, Others)
 - 4.2.3. By Region
 - 4.2.4. By Company (2022)
- 4.3. Market Map

- 4.3.1. By Application
- 4.3.2. By End User
- 4.3.3. By Region

5. ASIA PACIFIC HEXAMETHYLENEDIAMINE MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value & Volume
- 5.2. Market Share & Forecast
 - 5.2.1. By Application
 - 5.2.2. By End User
 - 5.2.3. By Country
- 5.3. Asia Pacific: Country Analysis
 - 5.3.1. China Hexamethylenediamine Market Outlook
 - 5.3.1.1. Market Size & Forecast
 - 5.3.1.1.1. By Value & Volume
 - 5.3.1.2. Market Share & Forecast
 - 5.3.1.2.1. By Application
 - 5.3.1.2.2. By End User
 - 5.3.2. India Hexamethylenediamine Market Outlook
 - 5.3.2.1. Market Size & Forecast
 - 5.3.2.1.1. By Value & Volume
 - 5.3.2.2. Market Share & Forecast
 - 5.3.2.2.1. By Application
 - 5.3.2.2.2. By End User
 - 5.3.3. Australia Hexamethylenediamine Market Outlook
 - 5.3.3.1. Market Size & Forecast
 - 5.3.3.1.1. By Value & Volume
 - 5.3.3.2. Market Share & Forecast
 - 5.3.3.2.1. By Application
 - 5.3.3.2.2. By End User
 - 5.3.4. Japan Hexamethylenediamine Market Outlook
 - 5.3.4.1. Market Size & Forecast
 - 5.3.4.1.1. By Value & Volume
 - 5.3.4.2. Market Share & Forecast
 - 5.3.4.2.1. By Application
 - 5.3.4.2.2. By End User
 - 5.3.5. South Korea Hexamethylenediamine Market Outlook
 - 5.3.5.1. Market Size & Forecast

- 5.3.5.1.1. By Value & Volume
- 5.3.5.2. Market Share & Forecast
 - 5.3.5.2.1. By Application
 - 5.3.5.2.2. By End User

6. EUROPE HEXAMETHYLENEDIAMINE MARKET OUTLOOK

- 6.1. Market Size & Forecast
 - 6.1.1. By Value & Volume
- 6.2. Market Share & Forecast
 - 6.2.1. By Application
 - 6.2.2. By End User
 - 6.2.3. By Country
- 6.3. Europe: Country Analysis
 - 6.3.1. France Hexamethylenediamine Market Outlook
 - 6.3.1.1. Market Size & Forecast
 - 6.3.1.1.1. By Value & Volume
 - 6.3.1.2. Market Share & Forecast
 - 6.3.1.2.1. By Application
 - 6.3.1.2.2. By End User
 - 6.3.2. Germany Hexamethylenediamine Market Outlook
 - 6.3.2.1. Market Size & Forecast
 - 6.3.2.1.1. By Value & Volume
 - 6.3.2.2. Market Share & Forecast
 - 6.3.2.2.1. By Application
 - 6.3.2.2.2. By End User
 - 6.3.3. Spain Hexamethylenediamine Market Outlook
 - 6.3.3.1. Market Size & Forecast
 - 6.3.3.1.1. By Value & Volume
 - 6.3.3.2. Market Share & Forecast
 - 6.3.3.2.1. By Application
 - 6.3.3.2.2. By End User
 - 6.3.4. Italy Hexamethylenediamine Market Outlook
 - 6.3.4.1. Market Size & Forecast
 - 6.3.4.1.1. By Value & Volume
 - 6.3.4.2. Market Share & Forecast
 - 6.3.4.2.1. By Application
 - 6.3.4.2.2. By End User
 - 6.3.5. United Kingdom Hexamethylenediamine Market Outlook

- 6.3.5.1. Market Size & Forecast
 - 6.3.5.1.1. By Value & Volume
- 6.3.5.2. Market Share & Forecast
 - 6.3.5.2.1. By Application
 - 6.3.5.2.2. By End User

7. NORTH AMERICA HEXAMETHYLENEDIAMINE MARKET OUTLOOK

- 7.1. Market Size & Forecast
 - 7.1.1. By Value & Volume
- 7.2. Market Share & Forecast
 - 7.2.1. By Application
 - 7.2.2. By End User
 - 7.2.3. By Country
- 7.3. North America: Country Analysis
 - 7.3.1. United States Hexamethylenediamine Market Outlook
 - 7.3.1.1. Market Size & Forecast
 - 7.3.1.1.1. By Value & Volume
 - 7.3.1.2. Market Share & Forecast
 - 7.3.1.2.1. By Application
 - 7.3.1.2.2. By End User
 - 7.3.2. Mexico Hexamethylenediamine Market Outlook
 - 7.3.2.1. Market Size & Forecast
 - 7.3.2.1.1. By Value & Volume
 - 7.3.2.2. Market Share & Forecast
 - 7.3.2.2.1. By Application
 - 7.3.2.2.2. By End User
 - 7.3.3. Canada Hexamethylenediamine Market Outlook
 - 7.3.3.1. Market Size & Forecast
 - 7.3.3.1.1. By Value & Volume
 - 7.3.3.2. Market Share & Forecast
 - 7.3.3.2.1. By Application
 - 7.3.3.2.2. By End User

8. SOUTH AMERICA HEXAMETHYLENEDIAMINE MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value & Volume
- 8.2. Market Share & Forecast

- 8.2.1. By Application
- 8.2.2. By End User
- 8.2.3. By Country
- 8.3. South America: Country Analysis
 - 8.3.1. Brazil Hexamethylenediamine Market Outlook
 - 8.3.1.1. Market Size & Forecast
 - 8.3.1.1.1. By Value & Volume
 - 8.3.1.2. Market Share & Forecast
 - 8.3.1.2.1. By Application
 - 8.3.1.2.2. By End User
 - 8.3.2. Argentina Hexamethylenediamine Market Outlook
 - 8.3.2.1. Market Size & Forecast
 - 8.3.2.1.1. By Value & Volume
 - 8.3.2.2. Market Share & Forecast
 - 8.3.2.2.1. By Application
 - 8.3.2.2.2. By End User
 - 8.3.3. Colombia Hexamethylenediamine Market Outlook
 - 8.3.3.1. Market Size & Forecast
 - 8.3.3.1.1. By Value & Volume
 - 8.3.3.2. Market Share & Forecast
 - 8.3.3.2.1. By Application
 - 8.3.3.2.2. By End User

9. MIDDLE EAST AND AFRICA HEXAMETHYLENEDIAMINE MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value & Volume
- 9.2. Market Share & Forecast
 - 9.2.1. By Application
 - 9.2.2. By End User
 - 9.2.3. By Country
- 9.3. MEA: Country Analysis
 - 9.3.1. South Africa Hexamethylenediamine Market Outlook
 - 9.3.1.1. Market Size & Forecast
 - 9.3.1.1.1. By Value & Volume
 - 9.3.1.2. Market Share & Forecast
 - 9.3.1.2.1. By Application
 - 9.3.1.2.2. By End User
 - 9.3.2. Saudi Arabia Hexamethylenediamine Market Outlook

- 9.3.2.1. Market Size & Forecast
 - 9.3.2.1.1. By Value & Volume
- 9.3.2.2. Market Share & Forecast
 - 9.3.2.2.1. By Application
 - 9.3.2.2.2. By End User
- 9.3.3. UAE Hexamethylenediamine Market Outlook
 - 9.3.3.1. Market Size & Forecast
 - 9.3.3.1.1. By Value & Volume
 - 9.3.3.2. Market Share & Forecast
 - 9.3.3.2.1. By Application
 - 9.3.3.2.2. By End User
- 9.3.4. Egypt Hexamethylenediamine Market Outlook
 - 9.3.4.1. Market Size & Forecast
 - 9.3.4.1.1. By Value & Volume
 - 9.3.4.2. Market Share & Forecast
 - 9.3.4.2.1. By Application
 - 9.3.4.2.2. By End User

10. MARKET DYNAMICS

- 10.1. Drivers
- 10.2. Challenges

11. MARKET TRENDS & DEVELOPMENTS

- 11.1. Recent Developments
- 11.2. Product Launches
- 11.3. Mergers & Acquisitions

12. GLOBAL HEXAMETHYLENEDIAMINE MARKET: SWOT ANALYSIS

13. PORTER'S FIVE FORCES ANALYSIS

- 13.1. Competition in the Industry
- 13.2. Potential of New Entrants
- 13.3. Power of Suppliers
- 13.4. Power of Customers
- 13.5. Threat of Substitute Product

14. COMPETITIVE LANDSCAPE

14.1. Asahi Kasei Corporation

14.1.1. Business Overview

14.1.2. Company Snapshot

14.1.3. Products & Services

14.1.4. Current Capacity Analysis

14.1.5. Financials (In case of listed)

14.1.6. Recent Developments

14.1.7. SWOT Analysis

14.2. Ascend Performance Materials Inc

14.3. BASF SE

14.4. Evonik Industries AG

14.5. Genomatic Inc.

14.6. INVISTA Sarl

14.7. Merck KGaA

14.8. Radici Partecipazioni SpA

14.9. Shenma Industrial Co. Ltd

14.10. TORAY INDUSTRIES INC.

15. STRATEGIC RECOMMENDATIONS

16. ABOUT US & DISCLAIMER

I would like to order

Product name: Hexamethylenediamine Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Application (Nylon Production, Nylon Synthesis, Biocides, Curing Agents, Lubricants, Others), By End User (Textile, Fiber, Plastic, Automotive, Others), By Region and Competition

Product link: <https://marketpublishers.com/r/H22AA890950BEN.html>

Price: US\$ 4,900.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/H22AA890950BEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below
and fax the completed form to +44 20 7900 3970